

## **REMARKS/ARGUMENTS**

Claims 1-12 remain in this application. Claim 9 has been amended.

### **Claim Objections**

**Claim 9 is objected to because of the following informalities: The word “grove” appears to be a typographical error.**

Claim 9 has been amended. The word “grove” has been replaced by the word “groove”.

### **Claim Rejections**

**Claims 1 -8 stand rejected under 35 U.S.C. 102(a) as being anticipated by Applicant Admitted Prior Art (AAPA).**

The Examiner pointed out that AAPA discloses a spool with two flanges, wherein one of the flanges has a fiber reversing grove on the outside surface of the flange. The Examiner stated that this flange with a grove performs substantially the same function and that because the same function is being performed “it would have been obvious at the time of invention to a person of ordinary skill in the art to have the groove on the side facing away from the hub”.

Applicants respectfully disagree with this assertion for the following reasons:

As shown in Figure 2, the fiber situated on the outside of the flange is exposed to environment, therefore necessitating the use of the cover plate 16. Applicants’ flange functions both as the flange and the outer cover plate, combining both functions and eliminating a component from the overall spool assembly. That is, because the fiber direction is reversed inside the spool, no outer cover plate is necessary. Accordingly, Applicants flange performs an additional and a different function than that shown in Applicants figure 2. Furthermore, in order for the fiber to reverse directions, the device of Figure 2 requires that the fiber is bend over the edge of the flange, prior to its entrance into the groove 20. This bending over the edge of the flange produces micro-bend losses that are eliminated in applicants claimed spool.

Since neither AAPA, nor any of the cited references does not disclose a groove being capable of reversing the direction of the fiber and, which faces the hub, Claims 1-8 are not unpatentable over the AAPA. Therefore applicants submit that claims 1- 8 are unobvious over the AAPA.

Furthermore, claims 2-4 specify that groove that is capable of reversing the direction of fiber is being at an angle  $\theta$  relative to the tangent line to the periphery of said flange, wherein said angle  $\theta$  is less than 15, 5 or 3 degrees.

The AAPA does not disclose that the specified angles (i.e, less than 15, 5 or 3 degrees).

The Examiner stated that Applicants does not state in the specification the criticality of any of the claimed angles. However the claimed preferred angles are supported by applicants disclosure (see paragraph [0032], for example) and the Appicants are not required to disclose in the specification the reasons for the preference. Never-the-less, Applicants do explain the reason for having the shallow angles, (i.e. keeping the fiber band radius relatively large).

The claimed angles are important because of the increasing microbending losses associated with the sharper angles. Applicants found that these claimed angles minimize fiber bending, and losses associated with fiber bending. For example, page 8, (lns 1-6) of the Applicant's specification describes that a flange perform may have several grooves (120A, 120B, 120C, 120D) of different diameters, so that when states that when the perform is cut to provide the flange of the required size (diameter  $D_F$ ) at least one groove "would allow the fiber to exit the flange at a shallow angle, preferably parallel to the circumference of the flange...and the (ii) the fiber bend radius be larger than the minimal acceptable radius". **Thus, Applicant's specification does describe the reasons for shallow angles (less than 15.5 or 3 degrees).**

With regard to claim 5, The Examiner stated that "AAPA discloses a plurality of groves (15, 20) each with a different radius". However AAPR shows that grove 15 is on one flange, while grove 20 is situated on another flange. This is nor what is claiyed by the

Applicants. Applicants claimed that the grooves are situated on the same flange-i.e. that “said flange has a plurality of fiber grooves”.

Claim 8 states that “said flange includes at least two fiber grooves, one of said fiber grooves allows the exiting fiber to reverse direction, so that fiber leads point in the same direction, and another one of said fiber grooves allowing the fiber leads to point in opposing directions”. However the AAPA has a flange that has a single fiber reversing groove 20, and no additional grooves.

**Claims 9-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,802,237 to Pulido.**

With regard to the independent claim 9 and 11, AAPA fails to disclose trimming the flange performs to the desired size. The Examiner stated “However, trimming any object or perform to the desired size would have been obvious to a person having an ordinary skill in the art, since it is always preferred to obtain a desired size on the basis of suitability for the intended use.” Applicants respectfully disagree with this assertion for the following reasons: Although it is always preferred to obtain a desired size on the basis of suitability for the intended use the prior art achieved this not by trimming (because the prior art flanges were not capable of being treamable, w/o destroying their intended purpose), but by making (molding, or machining) the flanges of the specific size for the intended use.

More specifically, the prior art flanges were made to specification, and were designed to for specific hubs. The Pulido flanges could not be made from a universal perform and are not capable of being trimmed to a wide range of sizes for the following reason: First, The Pulido flange is not tramable to a smaller size because such trimming would remove the protective side walls of the flange, exposing the fiber to the environment. Second, such cutting would also remove hinges, making it impossible for the flange to attach other housing(s) on the lid. Thirdly, the Pulido groove was designed to a specific flange size making the flange untrimable. Thus cutting the Pulido flange down in size would change the angle of the fiber exiting groove near the edge of the flange, thus placing this groove it at a sharp angle with respect to the new edge of the flange, and no

longer minimizing fiber bending. Applicants solved this problem by creating a perform with several exit grooves of different sizes (See Figures 7 and 8), so when the flange perform is trimmed down in size, there is at least one grove that has the curvature relative to the edge of the flange which allows the fiber without inflicting unacceptable bend losses on the fiber. That is, Applicant's flanges are capable of being trimmed down from the perform, to the desired size, while the Pulido flanges are not.

Furthermore, the cited references themselves provide no teaching or suggestions that the flanges can be made trimmable. Applicants note that in order for the claims to be obvious over the prior art, the references themselves have to teach the desired modification, or to provide an incentive for such modification. Such an incentive or teaching is absent from the Pulido and other cited art. Thus claims 9 and 11 are not obvious over Pulido reference.

Claims 10 and 12 depend from the independent claims 9 and 11, respectively, and, therefore, are also not obvious over the Pulido reference.

Claim 12 further states that the groove (after the trimming ) is being at the angle  $\theta$  which is less than 5 degrees, relative to the tangent line to the periphery of said flange, said groove being capable of reversing the direction of fiber.

As stated above, the Pulido reference does not teach that such trimming is even possible, and does not teach, suggest or gives any incentive for making a flange perform and cutting off material to form a perform of the specified diameter, now discusses how to do it while maintaining the angle  $\theta$  which is less than 5 degrees, relative to the tangent line to the periphery of said flange. Absent such teaching or suggestion, by the cited reference itself, Applicant's claim 12 is not obvious over the cited reference.

## Conclusion

Based upon the above amendments, remarks, and papers of records, applicant believes the pending claims of the above-captioned application are in allowable form and patentable over the prior art of record. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Applicant believes that no extension of time is necessary to make this Reply timely. Should applicant be in error, applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.

Please direct any questions or comments to Svetlana Z. Short at 607-974-0412

Respectfully submitted,

DATE: 1/5/06



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